

AMENDMENTS TO THE CLAIMS

The Listing of Claims set forth below shall replace all prior versions and listings of claims in the application.

Listing of Claims:

What is claimed is:

1. – 6. (Canceled)
7. (Currently amended) An isolated nucleic acid comprising a nucleotide sequence selected from the group consisting of:
 - (a) a nucleotide sequence set forth in SEQ ID NO:2 encoding a methyltransferase;
 - (b) a nucleotide sequence encoding an amino acid sequence set forth in SEQ ID NO:3;
 - (c) a nucleotide sequence which specifically hybridizes under stringent conditions, comprising a 0.2x SSC wash at 65° C for 15 minutes, to either strand of a denatured, double-stranded nucleic acid having a nucleotide sequence set forth in SEQ ID NO:2; and
wherein expression of the nucleotide sequence, in an ascomycetes host cell, results in the increased production of at least one secondary metabolite.
8. (Currently amended) An isolated nucleic acid according to claim 7 wherein said isolated nucleic acid encodes a polypeptide having methyltransferase activity and secondary metabolite gene cluster regulating activity wherein the gene cluster is a polyketide biosynthetic

gene cluster, a non-ribosomal protein biosynthetic gene cluster or a hyphal pigment synthetic gene cluster.

9. (Original) An isolated nucleic acid according to claim 7 wherein said isolated nucleic acid regulates the activity of a lovastatin or penicillin biosynthesis gene cluster.

10. (Currently amended) An isolated nucleic acid according to claim 6 7 wherein said isolated nucleic acid encodes a polypeptide having protein methyltransferase activity.

11. (Original) An expression vector comprising an isolated nucleic acid according to claim 7 wherein said isolated nucleic acid is in operative association with one or more regulatory elements.

12. (Currently amended) A transformed prokaryotic or eukaryotic host cell or cell line comprising an isolated nucleic acid according to claim 7.

13. (Currently amended) A transformed prokaryotic or eukaryotic host cell or cell line according to claim 12 wherein said transformed prokaryotic or eukaryotic host cell or cell line is capable of at least a two fold increase in production of a secondary metabolite relative to non-transformed prokaryotic or eukaryotic host cell or cell line.

14. (Currently amended) A method of preparing an isolated polypeptide comprising LaeA or fragments thereof, comprising the step of culturing a transformed prokaryotic or eukaryotic host cell or cell line of claim 12 under conditions conducive to expression of the polypeptide, and recovering the expressed polypeptide from the prokaryotic or eukaryotic host cell or cell line in isolated form.

15. (Withdrawn) A method of detecting a nucleic acid sequence encoding an amino acid sequence set forth in SEQ ID NO:3 in a biological sample comprising the steps of:

(a) hybridizing a complement of a nucleotide sequence, comprising at least 15 nucleotides of sequence ID NO:2, which encodes an amino acid sequence as set forth in SEQ ID NO:3 to a nucleic acid sequence present material of in a biological sample thereby forming a hybridization complex; and

(b) detecting the hybridization complex wherein the presence of the complex correlates with the presence of a nucleic acid encoding an amino acid sequence set forth in SEQ ID NO:3.

16. (Withdrawn) A method of increasing the amount of a secondary metabolite produced in ~~a cell or organism~~ an ascomycete, comprising the steps of:

(a) obtaining ~~an cell or organism~~ ascomycete capable of ~~biosynthesizing~~ producing a secondary metabolite;

(b) transforming said ~~cell or organism~~ ascomycete with a nucleic acid according to claim 78; and

(c) culturing said transformed ~~cell or organism~~ ascomycete so that an increase in production of the secondary metabolite occurs in the transformed ~~cell or organism~~ ascomycete as compared to a non-transformed ~~cell or organism~~ ascomycete.

17. (Withdrawn) A method according to claim 16 wherein said ~~cell or organism~~ ascomycete is an *Aspergillus* species.

18. (Withdrawn) A method according to claim 17 wherein the *Aspergillus* species is *A. nidulans* or *A. terreus*.

19. (Withdrawn) A method according to claim 17 wherein the secondary metabolite is lovastatin or penicillin.

20. (Withdrawn) A method according to claim 16 wherein said nucleic acid according to claim 78 overexpresses a polypeptide having secondary metabolite gene cluster regulating activity.

21. – 22. (Canceled)

23. (Withdrawn) A method of producing an isolated secondary metabolite, comprising steps of:

(a) obtaining an ~~cell or organism~~ ascomycete capable of biosynthesizing a secondary metabolite;

(b) transforming said ~~cell or organism~~ ascomycete with a nucleic acid according to claim 78;

(c) culturing said transformed ~~cell or organism~~ ascomycete under conditions conducive to increasing production of the secondary metabolite in the transformed ~~cell or organism~~ ascomycete as compared to a non transformed ~~cell or organism~~ ascomycete; and

(d) recovering said secondary metabolite from the transformed ~~cell or organism~~ ascomycete in an isolated form.

24. (Withdrawn) A method according to claim 23 wherein said ~~cell or organism~~
ascomycete is an *Aspergillus* species.

25. (Withdrawn) A method according to claim 24 wherein the *Aspergillus* species is *A. nidulans* or *A. terreus*.

26. (Withdrawn) A method according to claim 24 wherein the secondary metabolite is lovastatin or penicillin.

27. (Withdrawn) A method according to claim 23 wherein said nucleic acid according to claim 78 overexpresses a polypeptide having secondary metabolite gene cluster regulating activity.

28. – 32. (Canceled)

33. (New) The transformed prokaryotic or eukaryotic host cell or cell line according to claim 12, wherein expression of the polynucleotide results increased synthesis of RNA coding for a methyltransferase.

34. (New) The transformed prokaryotic or eukaryotic host cell or cell line of claim 13, wherein the host cell or cell line is selected from the group consisting of: fungi, bacteria, yeast, insect cells, plant cells and mammalian cells.

35. (New) The transformed prokaryotic or eukaryotic host cell or cell line of claim 34 wherein the host cell is an ascomycete.

36. (New) The transformed prokaryotic or eukaryotic host cell or cell line according to claim 11, wherein at least one of the regulatory elements is an inducible promoter.

37. (New) The method of claim 15, wherein the nucleotide sequence is at least 15 nucleotides in length and the hybridization complex is on a microarray.